VIRGINIA DROUGHT MONITORING TASK FORCE

Drought Status Report

September 29, 2010

Statewide precipitation for the current water year, October 1, 2009 September 30, 2010 was in the normal range (113% of normal) with all drought evaluation regions greater than 100% normal except the Big Sandy Region (98%). Normal precipitation is defined as the mean precipitation for a thirty year period of record. Precipitation greater than 85% and less than 115% of normal is considered to be in the normal range. Statewide precipitation is now within the normal range (97%) for the calendar year. Statewide precipitation is 97% of normal since June 1st with all drought evaluation regions except the York-James Region having greater than 85% of normal. All drought regions remain under the "Drought Watch" status announced this July. Appendix A contains precipitation tables for periods dating from July 1, 2009 through September 30, 2010 provided by the Climatology Office of the University of Virginia.

The National Weather Service Climate Prediction Center 6-10 day climatologic outlooks call for below normal precipitation for the entire Commonwealth and below normal temperatures for all but western third of the state. Normal precipitation and above normal temperatures are anticipated over the 8-14 day period. The one month outlook calls for equal chances of below normal, normal and above normal precipitation for the entire Commonwealth. The one month temperature outlook calls for equal chances of below normal, normal and above normal temperatures statewide. The three month outlook calls for equal chances of below normal, normal and above normal temperatures and precipitation for the entire Commonwealth.

The latest NOAA U.S. National Drought Monitor indicates "abnormally dry" to "moderate drought" conditions exist in approximately 58% of the Commonwealth. Southwest Virginia and a portion of South-central Virginia are the only areas that are not in an "abnormally dry" or "moderate drought" condition. Approximately 30% of Virginia is experiencing "severe drought" conditions, as designated in the U.S. National Drought Monitor. The Seasonal Drought Outlook for the United States from now through December 2010 forecasts "some improvement" in the drought conditions in the Coastal Plain portion of the state that is currently classified as "severe drought", and forecasts "persistence" in the Northern Virginia, the Piedmont areas currently classified as "severe drought". (Appendix D).

The number of public water supply systems under some sort of drought related restriction has been increasing. While the Virginia Department of Health (VDH) has not reported any impacts to public water supplies that have compromised their ability to provide the needs of their customers, 14 systems are under voluntary water conservation requirements and 11 systems are under mandatory water conservation requirements. Of the 50 systems listed in the VDH report, none are rated as having a "Better" overall water supply situation, thirty are rated as having a "Worse" overall water supply situation and all other systems are rated as being in a "Stable" situation (Appendix F).

The Virginia Department of Forestry (VDOF) continues to report an above normal rate of wildfire occurrence, with 122 fires reported in the month of July alone. The DOF is becoming increasingly concerned about the potential for a significant fall fire season.

The Department of Game and Inland Fisheries reports little change from the last report, with the exception of several boating access sites along the upper Nottoway and James being closed due to low river levels. The status of these ramps should improve with current rain events. A complete listing of the closed public boat access sites is posted on the DGIF web site at http://www.dgif.virginia.gov/boating/access. Hatchery water supply flows are normal for this time of year.

Reports from the Climatology Office of the University of Virginia, the Virginia Department of Environmental Quality, the United States Geological Survey, the Virginia Department of Forestry and the Virginia Department of Agriculture and Consumer Services, follow.

Virginia Department of Forestry
Wildfire Conditions

Summertime wildfire activity has remained at more elevated levels than what would be considered normal for Virginia. For the month of July 2010, the VDOF responded to 122 wildfires which burned 543 acres. The leading cause of wildfire continues to be human carelessness.

Observed fire behavior over the last few weeks indicates that wildfire occurrence, rates of spread and fire intensity is much greater than would normally be expected during this time of the year. The low fuel moisture conditions overall make suppression operations more difficult and lead to increased long term monitoring which can place a drain on firefighter resources. This has not been a significant problem up to this point, however it can have significant problem if the drought conditions persist moving in to our normal fall wildfire season

At least 26 counties across the Commonwealth have enacted local burning bans due to the increased risk of wildfire. The Department of Forestry's Cumulative Severity Index (CSI), which is a detailed measure of soil moisture conditions taken at six location across the Commonwealth indicate the driest conditions that we have seen within the last ten years.

The DOF is becoming increasingly concerned about the potential for a significant fall fire season. The official fall wildfire season runs from October 15 – November 30. Current predictions of warmer and drier than normal conditions through December indicate that little relief is expected through the end of the year and that the fall wildfire season could more troublesome than any we have faced in the last ten years. The agency has begun early contingency planning to be better prepared for higher than normal levels of wildfire activity headed into October.

Report of the Climatology Office of the University of Virginia

According to preliminary data, this summer (Jun–August) has been the warmest, averaged statewide, in the history of modern recordkeeping—going back to 1895. So far, September temperatures are significantly higher than normal for most observing stations. This has brought correspondingly higher than average evapotranspiration rates. In turn, as the ground surface dries out, less water is available for evaporation and more of the incoming solar energy goes into heating the surface air layer and increasing the daytime high temperature observations.

These factors have led to enhanced drying of topsoil layers, exacerbating the decline in agricultural conditions, and are having an increasing impact on longer-term moisture conditions. The recharge of deeper moisture reserves brought about by the ample precipitation this past winter has held off many potential problems with water supplies, but even that supply is being significantly diminished.

United States Geological Survey
Streamflow and Ground Water Levels

Precipitation across the State earlier in the week has partially mitigated drought conditions except in eastern and southeastern Virginia. Most of the State receive 0.25 to 1 inch of rain which significantly reduced the soil moisture deficit. There was very little runoff generated by the precipitation and reservoir levels were not significantly improved. Expected precipitation today and tomorrow should improve soil moisture and

streamflow in those areas still below normal. Reservoir levels may show slight increases. Expected cooler temperatures will reduce evapotranspiration. Because little if any of the precipitation will move into the groundwater system, long-term improvements are not expected. Without additional precipitation, streamflows conditions will recede to levels observed a week earlier.

Some wells have show a slight increase in water level as a result of the latest precipitation; however it is too soon to determine if the increase in water level is from moisture entering the groundwater system or simply from pressure generated by moisture in the upper layers of soil.

Virginia Department of Environmental Quality
Conditions of Major Reservoirs

Levels of large reservoirs statewide are dropping below normal ranges and have generally been declining throughout the summer. Four large multi-purpose reservoirs are identified as drought indicators in the *Virginia Drought Assessment and Response Plan* (Plan); Smith Mountain Lake, Lake Moomaw, Lake Anna and Kerr Reservoir. Two of these four of these reservoirs are currently at levels below defined drought watch status. Lake Anna remains above its Drought Watch stage of 248 ft by a margin of 0.7 ft. and as of September 30th, Smith Mountain Lake rose above its Drought Watch stage of 793 by a margin of 1.8 ft. Below is a summary of large reservoir conditions:

- As of September 29 Lake Moomaw on the Jackson River is at 1562.9 feet ASL, and is dropping at a rate of ~0.15 ft per day. Approximately 28.1% of conservation storage remains. Lake Moomaw is 2.1 ft below the Drought Watch level.
- As of September 30th Kerr Reservoir is currently approximately 4.04 ft below the Guide Curve and is anticipated to rise 0.84 ft by October 4th. Drought Watch status is reached at greater than 3 ft below the Guide Curve.
- As of October 1st Smith Mountain Lake is at elevation 794.8 ft which is 0.2 ft below full pond . The Drought Watch stage for Smith Mountain Lake is elevation 793 feet and below.
- As of October 4th, Lake Anna was at elevation 248.7 feet (1.3 feet below full) and rose approximately 0.3 ft since September 27th. The Drought Watch stage for Lake Anna Lake is elevation 248 feet and below.

Virginia Department of Agriculture and Consumer Services
Status of Agricultural Drought

Overview
As of September 27, 2010, fifty-six Virginia localities have formally requested the Governor's assistance in obtaining federal agricultural disaster designation due to drought conditions. The USDA/Farm Service Agency has completed the official loss assessment reports (LARs) for 38 of these localities – Albemarle, Amherst, Appomattox, Bedford, Brunswick, Campbell, Caroline, Charlotte, Clarke, Culpeper, Cumberland, Dinwiddie, Essex, Franklin, Frederick, Goochland, Hanover, Isle of Wight, King and Queen, King George, Lancaster, Louisa, Lunenburg, Mecklenburg, Middlesex, Nelson, Northumberland, Nottoway, Patrick, Pittsylvania, Powhatan, Prince Edward, Pulaski, Richmond (County), Rockbridge, Southampton, Surry, and Westmoreland. LARs are pending for the sixteen remaining localities – Amelia, Buckingham, Carroll, Fauquier, Fluvanna, Greene, Greensville, Halifax, James City, King William, Montgomery, Northampton, Orange, Rappahannock, Shenandoah, Spotsylvania, Stafford and Suffolk (City).

Streams are drying up causing some farmers to sell their herds of cattle. The hot, dry weather has taken its toll on water flow and pastures. Hay prices increased due to lower supplies. Heifer calves are selling for $10 to $20 cheaper; steers $5 to $10 cheaper. The number of 200 and 300-pound calves being marketed is several

times above normal because of low feed supplies forcing farmers to sell light animals. The number of beef cows going to market is also higher than normal. The Winchester market has sold 350 head a week for the last three weeks.

Corn and soybeans are being harvested in the Shenandoah Valley area, three to four weeks earlier than normal. The weather continues to remain extremely dry in Southeast Virginia. Cotton yields are ranging from 250 to 650 pounds per acre. Last year, this range was 600 to 1350. Most cotton has been defoliated and harvesting has begun. Picking is challenging with lots of green leaves remaining on the plant after defoliating which will result in grading deducts. Cotton prices continue to climb to record highs on the world market, but most growers in Virginia will struggle to meet their present contracts and will not be able to tap into the higher prices. The digging of peanuts should begin in two weeks; however, it will be difficult to dig with the ground so dry. Most peanuts have above ground plant growth but little growth under the ground, and yields are expected to be greatly reduced. Strawberry growers have put down plastic and are running drip lines to try to get moisture in the ground for planting. All three of these crops would benefit from some rain, two for aiding harvest and one in plant establishment.

APPENDIX A
Precipitation Departures by Drought Evaluation Region

PRELIMINARY PRECIPITATION SUMMARY

Prepared: 10/04/10

	DROUGHT REGION	OBSERVED	Sep 1, 2010 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	2.31	3.46	-1.15	67%
2	New River	3.96	3.41	0.55	116%
3	Roanoke	6.25	4.23	2.02	148%
4	Upper James	5.52	3.50	2.02	158%
5	Middle James	6.11	4.13	1.98	148%
6	Shenandoah	5.00	3.67	1.33	136%
7	Northern Virginia	6.42	4.07	2.35	158%
8	Northern Piedmont	6.29	4.28	2.01	147%
9	Chowan	8.30	4.43	3.87	187%
10	Northern Coastal Plain	7.68	4.09	3.59	188%
11	York-James	9.27	4.90	4.37	189%
12	Southeast Virginia	13.28	4.43	8.85	300%
13	Eastern Shore	4.56	3.61	0.95	126%
	Statewide	6.04	4.00	2.04	151%

	DROUGHT REGION	OBSERVED	Aug 1, 2010 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	7.45	7.29	0.16	102%
2	New River	9.20	6.72	2.48	137%
3	Roanoke	12.69	7.95	4.74	160%
4	Upper James	8.49	6.83	1.66	124%
5	Middle James	10.29	7.95	2.34	129%
6	Shenandoah	7.69	7.00	0.69	110%
7	Northern Virginia	10.68	7.92	2.76	135%
8	Northern Piedmont	9.70	8.10	1.60	120%
9	Chowan	12.57	8.74	3.83	144%
10	Northern Coastal Plain	12.02	7.95	4.07	151%
11	York-James	10.97	9.77	1.20	112%
12	Southeast Virginia	16.48	9.55	6.93	173%
13	Eastern Shore	9.34	7.48	1.86	125%
	Statewide	10.41	7.83	2.58	133%

	DROUGHT REGION	OBSERVED	Jul 1, 2010 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	11.18	11.77	-0.59	95%
2	New River	12.04	10.51	1.53	115%
3	Roanoke	15.94	12.34	3.60	129%
4	Upper James	12.15	10.87	1.28	112%
5	Middle James	12.16	12.36	-0.20	98%
6	Shenandoah	11.08	10.76	0.32	103%
7	Northern Virginia	14.14	11.69	2.45	121%
8	Northern Piedmont	12.03	12.50	-0.47	96%

9	Chowan	14.25	13.25	1.00	108%
10	Northern Coastal Plain	13.48	12.40	1.08	109%
11	York-James	14.33	14.87	-0.54	96%
12	Southeast Virginia	20.20	14.62	5.58	138%
13	Eastern Shore	11.43	11.48	-0.05	100%
	Statewide	13.18	12.17	1.01	108%

	DROUGHT REGION	OBSERVED	Jun 1, 2010 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	15.96	15.91	0.05	100%
2	New River	14.61	14.36	0.25	102%
3	Roanoke	18.03	16.23	1.80	111%
4	Upper James	14.00	14.58	-0.58	96%
5	Middle James	14.03	15.87	-1.84	88%
6	Shenandoah	12.90	14.47	-1.57	89%
7	Northern Virginia	15.49	15.55	-0.07	100%
8	Northern Piedmont	14.44	16.51	-2.07	87%
9	Chowan	16.77	16.90	-0.13	99%
10	Northern Coastal Plain	15.49	15.96	-0.47	97%
11	York-James	15.26	18.28	-3.02	83%
12	Southeast Virginia	23.44	18.23	5.21	129%
13	Eastern Shore	12.95	14.46	-1.51	90%
	Statewide	15.55	15.96	-0.41	97%

	DROUGHT REGION	OBSERVED	May 1, 2010 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	21.41	20.73	0.68	103%
2	New River	18.42	18.57	-0.15	99%
3	Roanoke	22.68	20.56	2.12	110%
4	Upper James	17.80	18.86	-1.06	94%
5	Middle James	18.08	20.11	-2.03	90%
6	Shenandoah	15.96	18.31	-2.35	87%
7	Northern Virginia	20.13	19.89	0.24	101%
8	Northern Piedmont	18.11	20.73	-2.62	87%
9	Chowan	22.19	20.99	1.20	106%
10	Northern Coastal Plain	17.89	20.12	-2.23	89%
11	York-James	20.16	22.55	-2.39	89%
12	Southeast Virginia	27.64	22.09	5.55	125%
13	Eastern Shore	15.07	17.98	-2.91	84%
	Statewide	19.71	20.22	-0.51	97%

	DROUGHT REGION	OBSERVED	Apr 1, 2010 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	24.09	24.49	-0.40	98%
2	New River	20.27	22.12	-1.85	92%
3	Roanoke	24.44	24.36	0.08	100%
4	Upper James	19.51	22.26	-2.75	88%
5	Middle James	19.83	23.45	-3.62	85%
6	Shenandoah	17.31	21.23	-3.92	82%

7	Northern Virginia	21.72	23.19	-1.47	94%
8	Northern Piedmont	19.64	24.02	-4.38	82%
9	Chowan	23.63	24.42	-0.79	97%
10	Northern Coastal Plain	19.48	23.21	-3.73	84%
11	York-James	21.11	25.85	-4.74	82%
12	Southeast Virginia	28.83	25.34	3.49	114%
13	Eastern Shore	16.25	20.90	-4.65	78%
	Statewide	21.43	23.64	-2.21	91%

	DROUGHT REGION	OBSERVED	Mar 1, 2010 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	26.96	28.74	-1.78	94%
2	New River	24.33	25.79	-1.46	94%
3	Roanoke	29.57	28.63	0.94	103%
4	Upper James	23.61	26.05	-2.44	91%
5	Middle James	24.97	27.51	-2.54	91%
6	Shenandoah	22.03	24.43	-2.40	90%
7	Northern Virginia	25.46	26.85	-1.39	95%
8	Northern Piedmont	24.56	27.83	-3.27	88%
9	Chowan	28.22	28.79	-0.57	98%
10	Northern Coastal Plain	25.63	27.49	-1.86	93%
11	York-James	26.72	30.54	-3.82	88%
12	Southeast Virginia	35.14	29.54	5.60	119%
13	Eastern Shore	22.48	25.21	-2.73	89%
	Statewide	26.12	27.68	-1.56	94%

	DROUGHT REGION	OBSERVED	Feb 1, 2010 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	29.74	32.32	-2.58	92%
2	New River	26.75	28.72	-1.97	93%
3	Roanoke	32.22	31.94	0.28	101%
4	Upper James	25.93	28.90	-2.97	90%
5	Middle James	28.19	30.63	-2.44	92%
6	Shenandoah	24.91	26.84	-1.93	93%
7	Northern Virginia	29.51	29.52	-0.01	100%
8	Northern Piedmont	27.09	30.80	-3.71	88%
9	Chowan	31.47	31.96	-0.49	98%
10	Northern Coastal Plain	28.93	30.63	-1.70	94%
11	York-James	30.41	34.07	-3.66	89%
12	Southeast Virginia	38.89	33.04	5.85	118%
13	Eastern Shore	26.36	28.40	-2.04	93%
	Statewide	29.09	30.81	-1.72	94%

	DROUGHT REGION	OBSERVED	Jan 1, 2010 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	33.97	36.05	-2.08	94%
2	New River	31.26	31.93	-0.67	98%
3	Roanoke	37.29	35.86	1.43	104%
4	Upper James	30.25	32.18	-1.93	94%

5	Middle James	32.58	34.29	-1.71	95%
6	Shenandoah	28.72	29.69	-0.97	97%
7	Northern Virginia	32.21	32.80	-0.59	98%
8	Northern Piedmont	31.02	34.32	-3.30	90%
9	Chowan	35.49	36.07	-0.58	98%
10	Northern Coastal Plain	32.63	34.38	-1.75	95%
11	York-James	34.84	38.21	-3.37	91%
12	Southeast Virginia	43.21	37.20	6.01	116%
13	Eastern Shore	29.38	31.96	-2.58	92%
	Statewide	33.30	34.45	-1.15	97%

	DROUGHT REGION	OBSERVED	Dec 1, 2009 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	39.66	39.69	-0.03	100%
2	New River	38.55	34.64	3.91	111%
3	Roanoke	44.86	39.11	5.75	115%
4	Upper James	37.64	35.13	2.51	107%
5	Middle James	40.73	37.46	3.27	109%
6	Shenandoah	33.96	32.28	1.68	105%
7	Northern Virginia	38.45	35.90	2.55	107%
8	Northern Piedmont	37.51	37.60	-0.09	100%
9	Chowan	43.43	39.09	4.34	111%
10	Northern Coastal Plain	40.54	37.66	2.88	108%
11	York-James	41.79	41.60	0.19	100%
12	Southeast Virginia	51.02	40.38	10.64	126%
13	Eastern Shore	37.91	35.20	2.71	108%
	Statewide	40.44	37.57	2.87	108%

	DROUGHT REGION	OBSERVED	Nov 1, 2009 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	41.91	42.97	-1.06	98%
2	New River	43.55	37.67	5.88	116%
3	Roanoke	53.04	42.47	10.57	125%
4	Upper James	42.53	38.49	4.04	110%
5	Middle James	49.30	40.97	8.33	120%
6	Shenandoah	37.82	35.33	2.49	107%
7	Northern Virginia	42.39	39.31	3.08	108%
8	Northern Piedmont	43.57	41.40	2.17	105%
9	Chowan	53.07	42.20	10.87	126%
10	Northern Coastal Plain	49.29	40.80	8.49	121%
11	York-James	51.05	44.97	6.08	114%
12	Southeast Virginia	61.40	43.45	17.95	141%
13	Eastern Shore	45.46	38.14	7.32	119%
	Statewide	47.08	40.80	6.28	115%

	DROUGHT REGION	OBSERVED	Oct 1, 2009 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	44.95	45.85	-0.90	98%

2	New River	46.24	40.84	5.40	113%
3	Roanoke	55.60	46.18	9.42	120%
4	Upper James	45.31	41.74	3.57	109%
5	Middle James	52.36	44.81	7.55	117%
6	Shenandoah	40.57	38.52	2.05	105%
7	Northern Virginia	47.20	42.79	4.41	110%
8	Northern Piedmont	46.99	45.39	1.60	104%
9	Chowan	55.12	45.78	9.34	120%
10	Northern Coastal Plain	53.50	44.31	9.19	121%
11	York-James	54.14	48.50	5.64	112%
12	Southeast Virginia	63.71	47.11	16.60	135%
13	Eastern Shore	49.83	41.35	8.48	121%
	Statewide	50.08	44.30	5.78	113%

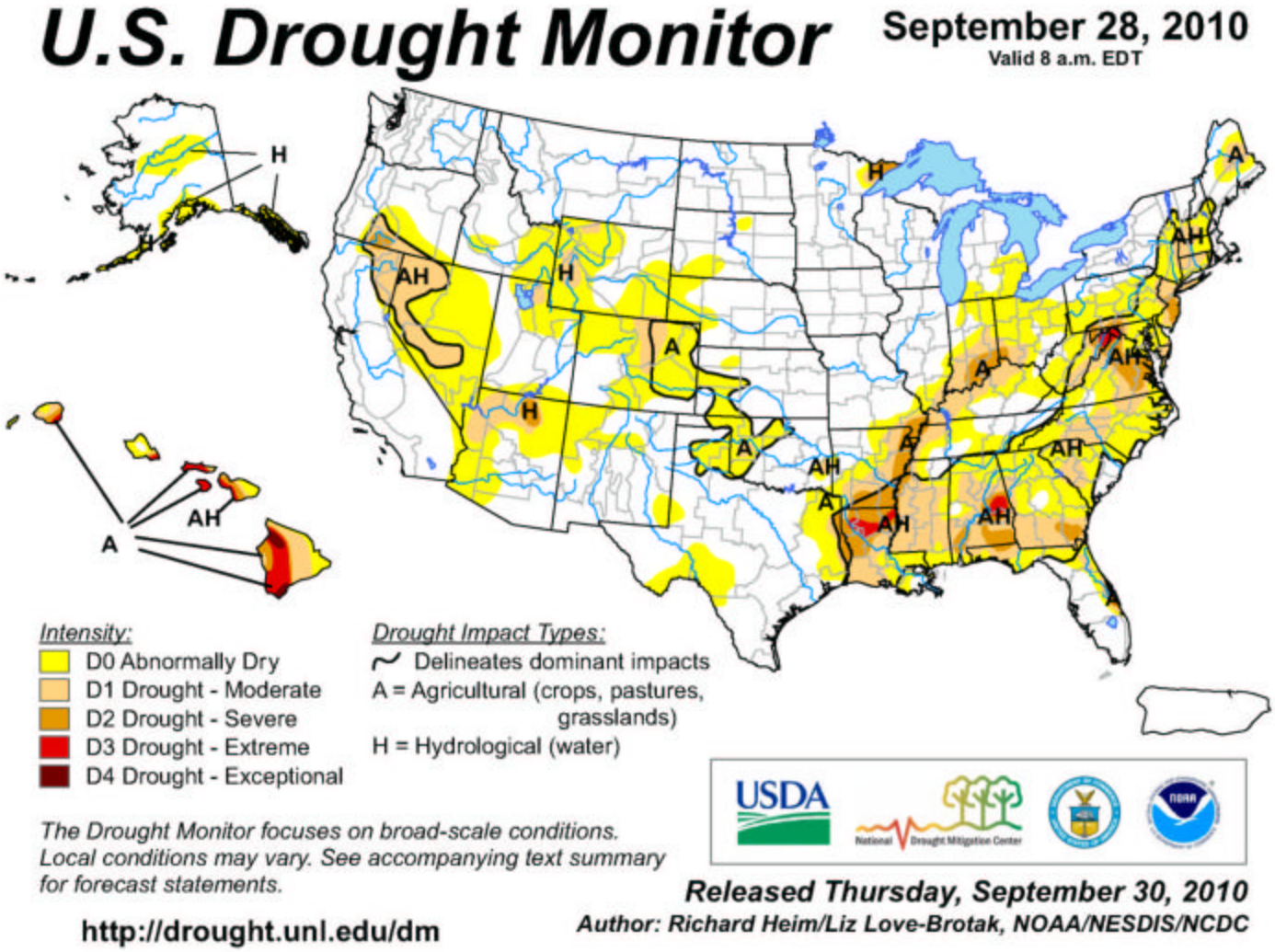
	DROUGHT REGION	OBSERVED	Sep 1, 2009 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	50.13	49.31	0.82	102%
2	New River	50.25	44.25	6.00	114%
3	Roanoke	58.66	50.41	8.25	116%
4	Upper James	48.59	45.24	3.35	107%
5	Middle James	55.53	48.94	6.59	113%
6	Shenandoah	42.79	42.19	0.60	101%
7	Northern Virginia	49.45	46.86	2.59	106%
8	Northern Piedmont	49.87	49.67	0.20	100%
9	Chowan	59.43	50.21	9.22	118%
10	Northern Coastal Plain	56.58	48.40	8.18	117%
11	York-James	60.05	53.40	6.65	112%
12	Southeast Virginia	71.02	51.54	19.48	138%
13	Eastern Shore	56.31	44.96	11.35	125%
	Statewide	53.72	48.30	5.42	111%

	DROUGHT REGION	OBSERVED	Aug 1, 2009 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	54.62	53.14	1.48	103%
2	New River	54.76	47.56	7.20	115%
3	Roanoke	63.00	54.13	8.87	116%
4	Upper James	51.97	48.57	3.40	107%
5	Middle James	59.05	52.76	6.29	112%
6	Shenandoah	45.83	45.52	0.31	101%
7	Northern Virginia	53.41	50.71	2.70	105%
8	Northern Piedmont	53.02	53.49	-0.47	99%
9	Chowan	63.28	54.52	8.76	116%
10	Northern Coastal Plain	61.84	52.26	9.58	118%
11	York-James	65.52	58.27	7.25	112%
12	Southeast Virginia	80.47	56.66	23.81	142%
13	Eastern Shore	60.90	48.83	12.07	125%
	Statewide	57.90	52.13	5.77	111%

	DROUGHT REGION	OBSERVED	Jul 1, 2009 NORMAL	- Sep 30, 2010 DEPARTURE	% OF NORM.
1	Big Sandy	60.23	57.62	2.61	105%

2	New River	58.82	51.35	7.47	115%
3	Roanoke	67.36	58.52	8.84	115%
4	Upper James	56.86	52.61	4.25	108%
5	Middle James	62.54	57.17	5.37	109%
6	Shenandoah	48.77	49.28	-0.51	99%
7	Northern Virginia	55.07	54.48	0.59	101%
8	Northern Piedmont	55.94	57.89	-1.95	97%
9	Chowan	67.29	59.03	8.26	114%
10	Northern Coastal Plain	66.70	56.71	9.99	118%
11	York-James	71.50	63.37	8.13	113%
12	Southeast Virginia	84.45	61.73	22.72	137%
13	Eastern Shore	66.69	52.83	13.86	126%
	Statewide	61.95	56.47	5.48	110%

APPENDIX B


U.S. Drought Monitor
September 28, 2010
Valid 8 a.m. EDT
Intensity:
D0 Abnormally Dry
D1 Drought - Moderate
D2 Drought - Severe
D3 Drought - Extreme
D4 Drought - Exceptional
Drought Impact Types:
Delineates dominant impacts
A = Agricultural (crops, pastures, grasslands)
H = Hydrological (water)
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.
http://drought.unl.edu/dm
Released Thursday, September 30, 2010
Author: Richard Heim/Liz Love-Brotak, NOAA/NESDIS/NCDC

APPENDIX C

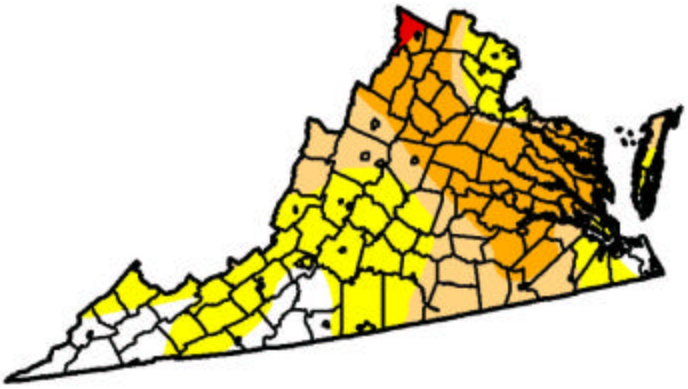
U.S. Drought Monitor

September 28, 2010
Valid 7 a.m. EST

Virginia

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	13.7	86.3	49.7	28.2	0.8	0.0
Last Week (09/21/2010 map)	10.9	89.1	50.3	31.3	0.8	0.0
3 Months Ago (07/06/2010 map)	14.1	85.9	34.7	0.0	0.0	0.0
Start of Calendar Year (01/05/2010 map)	100.0	0.0	0.0	0.0	0.0	0.0
Start of Water Year (10/06/2009 map)	86.9	13.1	0.4	0.0	0.0	0.0
One Year Ago (09/29/2009 map)	86.6	13.4	0.4	0.0	0.0	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

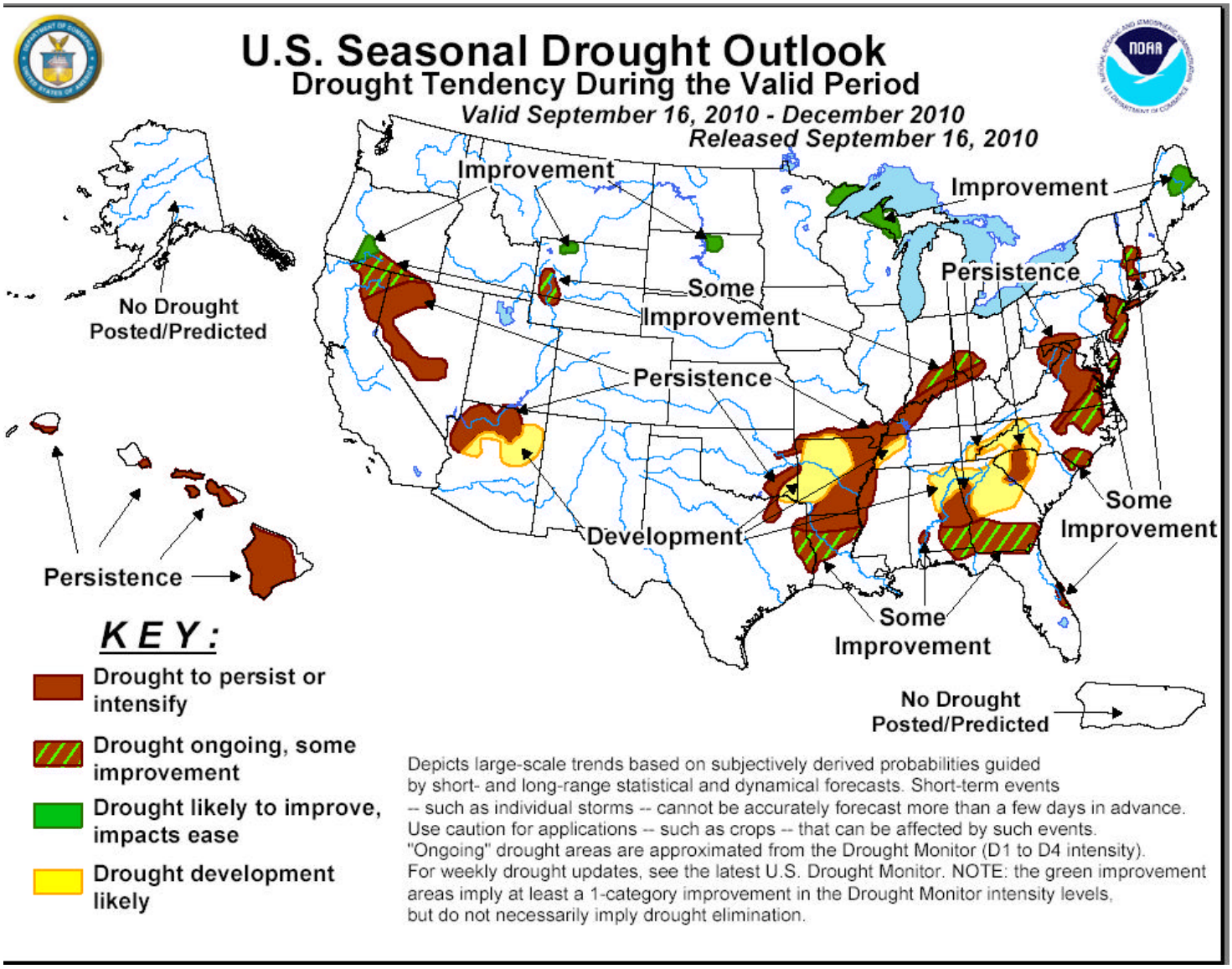
http://drought.unl.edu/dm

USDA National Drought Mitigation Center

Released Thursday, September 30, 2010

Author: R. Heim/L. Lov-Brotak, NCDC/NOAA

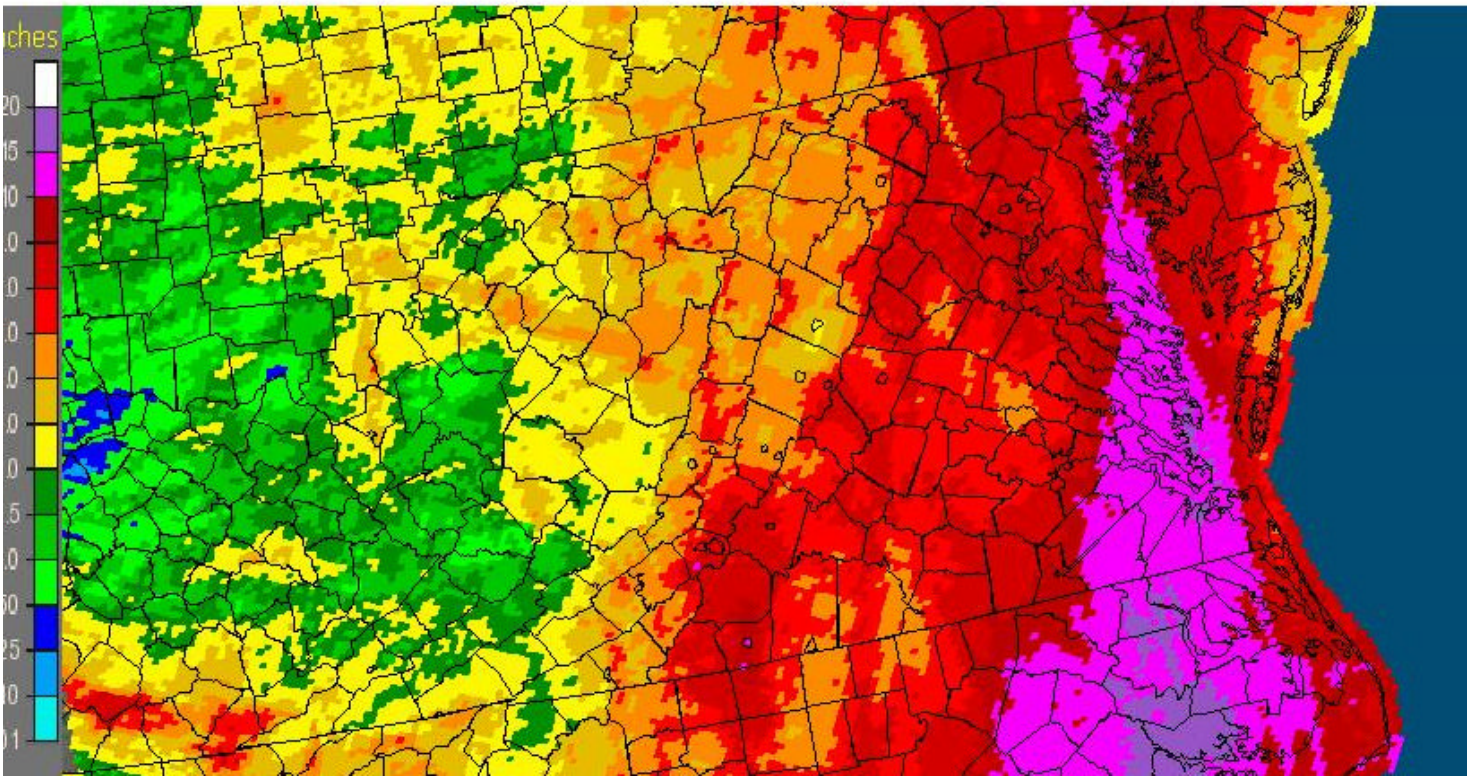
APPENDIX D


U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period
Valid September 16, 2010 - December 2010
Released September 16, 2010
Improvement
Improvement
Persistence
Some Improvement
Persistence
Development
Some Improvement
Some Improvement
No Drought Posted/Predicted
Persistence
No Drought Posted/Predicted
KEY:
Drought to persist or intensify
Drought ongoing, some improvement
Drought likely to improve, impacts ease
Drought development likely
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events -- such as individual storms -- cannot be accurately forecast more than a few days in advance. Use caution for applications -- such as crops -- that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor. NOTE: the green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.

APPENDIX E

30-Day Departure from Normal Precipitation

irginia: September, 2010 Monthly Observed Precipitation
alid at 10/1/2010 1200 UTC- Created 10/3/10 21:39 UTC



APPENDIX F
Condition of Public Water Supplies
September 28, 2010

ODW Drought Situation Report

Date: **9/28/10**

	Restriction totals	Population Totals
Mandatory	11	590,614
Voluntary	14	750,226
Total	**25**	1,340,840

N-None
M-Mandatory
V-Voluntary

B-Better
S-Stable/Same
W-Worse

PWSID	Waterworks	Source Name	Restrictions	Situation	Population Served
2003050	ACSA - Crozet	Beaver Creek Reservoir	V	W - 9/22/10 - Voluntary conservation requested.	6,310
2003051	ACSA - Scottsville	Totier Creek Reservoir	V	W - 9/22/10 - Voluntary conservation requested.	723
2003053	ACSA - Urban Area	Sugar Hollow, Ragged Mtn., South Rivanna, North Rivanna	V	W - 9/22/10 - Voluntary conservation requested.	55,510
2187406	Town of Front Royal	South Fork Shenandoah River	**M**	W - 9/25/10 - Mandatory conservation required.	12,500
2540500	City of Charlottesville	Sugar Hollow, Ragged Mtn., South Rivanna, North Rivanna	V	W - 9/22/10 - Voluntary conservation requested.	41,487
3053280	DCWA Central (Dinwiddie County)	Appomattox River Water Authority (ARWA)	**M**	**W**- 09/27/2010 - Phase III emergency restrictions. ARWA reservior level triggered call for mandatory restrictions on 9/7/2010 and emergency restrictions on 9/24/2010.	6,800
3081550	GCWSA - Jarratt	Nottoway River	N	**S** - 09/27/2010 - Waterworks production rate reduced due to lower demand; river	7,190

				level sufficient to allow plant operation at 1.9 mgd. Gage at Stony Creek indicates 1.77 feet and rising.	
3093120	Isle of Wight County	Suffolk	N	**W** - 09/28/10 - Obtains water from Suffolk. Follows Suffolk's lead on conservation.	1,284
3095490	James City Service Authority	Ground water	V	**S** - Will continue with voluntary conservation until at least October 1, 2010.	49,880
3149700	Puddledock Road	ARWA	**M**	**W**- 09/27/2010 - Emergency restrictions. ARWA reservoir level triggered call for mandatory restrictions on 9/7/2010 and emergency restrictions on 9/24/2010.	9,723
3550050	Chesapeake - Western Branch system	City of Portsmouth	N	**S** -09/28/2010 This portion of the city is consecutive to (receives water from) the city of Portsmouth. Will follow Portsmouth's lead on conservation.	36,642
3550051	Chesapeake	Northwest River, City of Norfolk Raw Water (Lake Gaston)	N	**S** -09/28/2010 Through the first 7 months surplus rainfall for 2010 is 13.24 inches. They received 3.25 inches of rain yesterday. There are no water restrictions in Chesapeake. Chlorides are slightly elevated 267 ppm. The normal range between 31-267 mg/l. Continuing to purchase raw water from Norfolk (7.5	103,504

				MGD average). NWR averages 4.4 MGD. The Intown Lakes remain full and there are no irregularities in the tidal patterns in NWR.	
3550052	Chesapeake - South Norfolk system	City of Norfolk	N	**S** -09/28/2010-This portion of the city is consecutive to (receives water from) the city of Norfolk. Will follow Norfolk's lead on conservation.	38,709
3570150	Colonial Heights	ARWA	**M**	**W** - 09/27/2010 - Phase III Emergency restrictions as of 9/27/2010. Generally follow ARWA recommendations on water restrictions.	17,286
3595250	Emporia	Meherrin River	N	**S** - 09/28/2010 - Reservoir level sufficient for normal operation.	5,600
3670800	Virginia-American Water Company (Hopewell)	Appomattox & James Rivers	N	**S** - 09/27/2010 - Level at intakes sufficient to supply plant. Still experiencing taste and odor issues (MIB in raw and finished water). Fort Lee being supplied from Hopewell due to ARWA water restrictions.	28000 - Primary / 45463 Total including Consecutive System (Ft. Lee)
3700500	Newport News	Chickahomony River, Skiffs Creek, Diascand, Little Creek, Harwoods Mill, Lee Hall	N	**S** (stored capacity lower, but so is demand) **-** 9/27/10 - Total reservoir capacity at 63%. At current delivery rate range 44 - 45 MGD, there is about 158 days of stored water available at current demand.	414,000

				Chickahominy flow is low and downstream chloride levels are rising. Tidal dam may be over topped by high tides in the next few days.	
3710100	Norfolk	Lake Prince, Lake Burnt Mills, Western Branch reservoir, Nottoway River, Blackwater River, 4 western wells; Little Creek reservoir, Lakes Smith, Lawson, Whitehurst, and Wright. Lake Gaston.	N	**W** - As of 09/27/10, reservoirs at 81.6% (down from 84% on 09/13/10). Historic reservoir capacity is 84.5% at this time of year. Avg. pumping from Lake Gaston = 45.8 MGD. Total Reservoir Storage = 12,417 MG. Approx. 513 days of storage remaining under current demand with 45.8 MGD pumping from Lake Gaston, and approx. 177 days of storage remaining under current demand with no pumping from Lake Gaston. Current demand of approx. 70 MGD.	261,250 - Primary / 755,617 - Total including consecutive systems (Va Beach + military bases).
3730750	Petersburg	ARWA	**M**	**W** - 09/27/2010 - Phase III emergency restrictions requested 09/26/2010. Generally follow ARWA recommendations on water restrictions.	33,740
3740600	Portsmouth	Lakes Cohoon, Meade, Kilby, and Speights Run	N	**W** - As of 09/24/10, reservoirs at 67% (down from 71% on 09/03/10). Median reservoir capacity is 95% for the month and historical average capacity is 88% (period of 1969-2008). The emergency wells	100,400 - Primary / 120,400 Total including consecutive systems (military bases)

				are ON and producing 3.16 MGD. Estimated days of storage remaining at current pumpage and rainfall is 171 days (avg. pumpage is 15.1 MGD).	
3800805	Suffolk	Lone Star Lakes, Cumps Mill Pond	N	**W** 9/28/2010-Will follow Portsmouth's lead and the region as far as conservation. Received 1.25 inches of rain yesterday. Average reservoir levels : Southern Lakes at 42.5% capacity, for the Northern Lakes at 48.8% and Crumps Mill Pond at 53.8% (9/27/10). The Southern Lakes are for emergency use only. The operator states that they were in better condition last year when compared to 2009 (92.39%) for the same period. No conservation measures implemented at this time but will continue to monitor.	62,562
3810900	Virginia Beach	Norfolk	N	**S** - 09/27/10 - Obtains water from Norfolk.	423,743
3830850	Williamsburg	Waller Mill Reservoir	N	**W** 9/27/10: 19.5" below primary spillway - about 70% of usable capacity. 220 days of usable storage based on drawdown rate of the past week of 0.43" per day.	16,400
4041035	APPOMATTOX RIVER WATER AUTHORITY	Surface water; Lake Chesdin	**M**	**W**- Wholesaler to Chesterfield County, Prince George County,	**200,000**

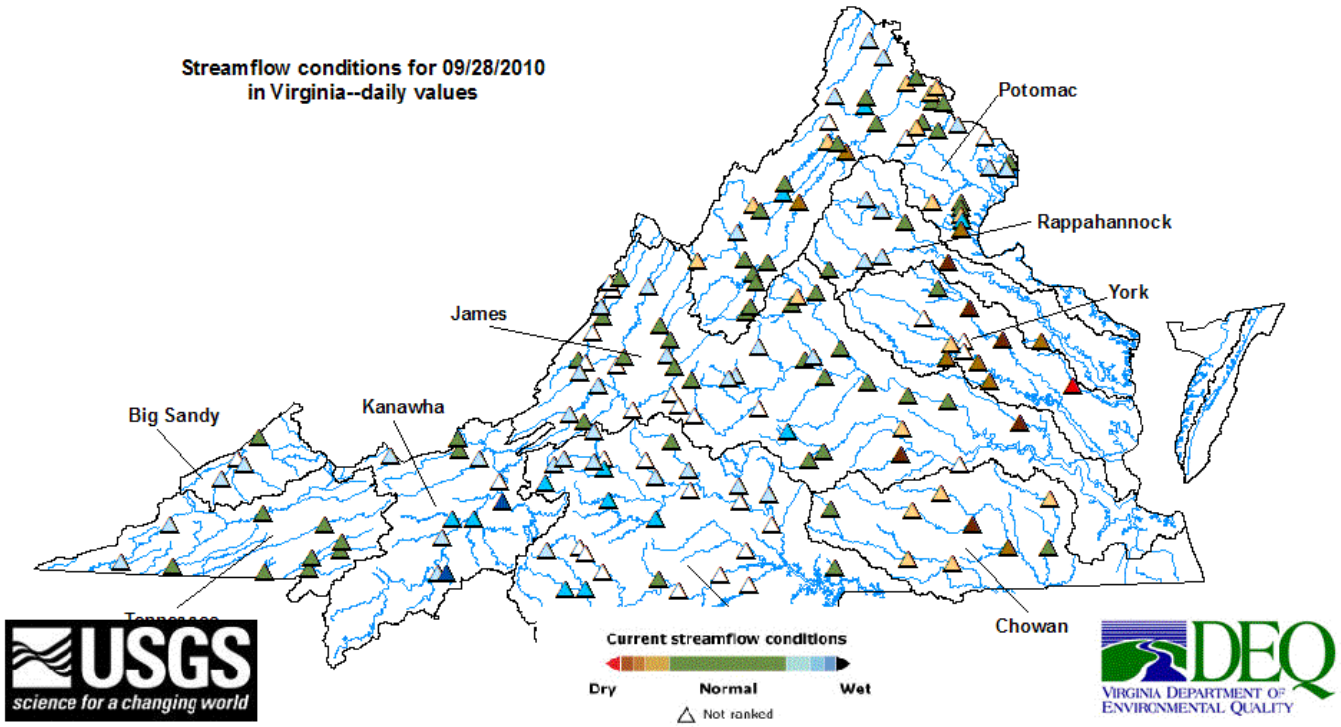
				Dinwiddie County; Cities of Petersburg and Colonial Heights. Reservoir is at 140" below top of dam. Emergency restrictions have been initiated.	
4041845	CHESTERFIELD CO CENTRAL WATER SYSTEM	Surface water; Swift Creek reservoir; purchases finished water	**M**	**W**- Purchases water from the City of Richmond and the Appomattox River Water Authority. Swift Creek Reservoir is at 2.3 feet below top of dam. Emergency restrictions have been initiated because of the low water level in Lake Chesdin (ARWA).	286,000
4057800	TAPPAHANNOCK, TOWN OF	Groundwater wells	N	**S**	2,100
4073311	GLOUCESTER CO WATER TREATMENT PLT	Surface water, Beaverdam reservoir; 2 deep groundwater wells	N	**S-**Reservoir is about 5 inches below overflow level.	8,870
4075283	EASTERN GOOCHLAND CENTRAL WATER SYSTEM	Purchased surface water	V	**W-**purchases water from Henrico County	2,500
4075735	JAMES RIVER CORRECTIONAL CTR	Surface water; James River	N	**S-** Conservation at all DOC facilities	9,300
4085398	HANOVER SUBURBAN WATER SYSTEM	Surface water; North Anna River; some groundwater wells; purchases finished water	V	**W (see Richmond)**	71,000
4085770	SPRING MEADOWS-MEADOW GATE	Groundwater wells	N	**S**	2,300
4087125	HENRICO COUNTY WATER SYSTEM	Surface water; James River	V	**W (see Richmond)**	289,000
4101900	WEST POINT, TOWN OF	Groundwater wells	N	**S**	3,000
4127110	DELMARVA PROPERTIES	Groundwater wells	N	**S-**New Kent Co. encourages conservation at all county owned waterworks.	7,700
4145675	POWHATAN COURTHOUSE	Groundwater wells	N	**S**	2,600

4193280	COLONIAL BEACH, TOWN OF	Groundwater wells	N	**S**	3,300
4760100	RICHMOND, CITY OF	Surface water; James River	V	**W**- water levels do not affect intake; James River Regional Flow Management Plan set restrictions based on James River level for counties of Henrico, Chesterfield, Goochland, and Hanover counties, which purchase water from the City. Voluntary restrictions implemented. May need to implement mandatory due to either decreasing levels or 'winter' requirements, effective 10/1/10.	197,000
5011050	Town of Appomattox	Wells	N	**S** - This is more of a long term issue with somewhat declining GW levels in some wells. Not short term or immediate change.	1,708
6033085	Caroline Utility	Groundwater	**M**	**S** - Mandatory water use restriction of High-Level 3 went into effect 7/13/2010. On 9/14/2010, restriction level was reduced to Low - Level 1 due to decreased customer demand. (Updated 9/24/10)	6,600
6047500	Town of Culpeper	Surface water - Lake Pelham	V	**W - Voluntary water use restriction has been called for. On 9/27, Lake Pelham surface was 17.25 inches down from the overflow.**	14,200
6059501	Fairfax Water	Surface Water - Potomac River and Occoquan Reservoir	N	W - 09/24/10 - Upstream relases from reservoirs are	823,216 primary 1.8MM total

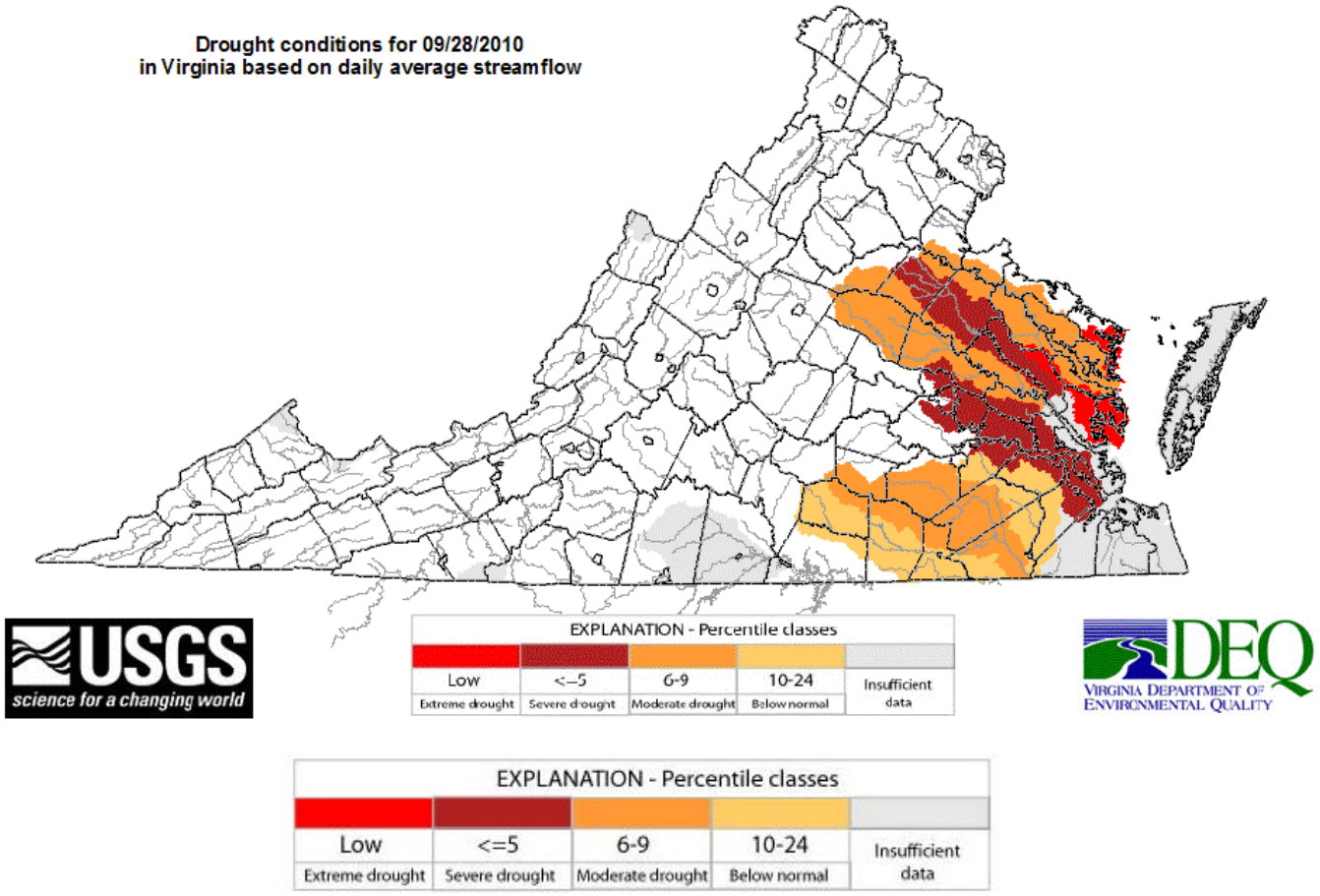
				keeping Potomac River flows sufficient to meet demand.	
6061200	Marshall	Groundwater	**M**	**S** - The WSA Alert Messaging Service maintains the Water Use Restriction Notice as of 9/13/2010. The mandatory water use restriction is not directly drought related but depends on water source development.	2,134
6061600	Town of Warrenton	Surface (Cedar Run) and groundwater	V	W-On Monday, September 13,Warrenton called for voluntary conservation. On 9/28, Warrenton Reservoir surface was at 439.9 ft vs full level of 445.3 ft and water was being transferred from Airlie Reservoir.	11,160
6107150	Town of Hamilton	Groundwater	V	**S** - 9/13/10 Voluntary water use restrictions initiated 7/6/2010	2,000
6107300	Town of Leesburg	Surface Water - Potomac River	N	W - 09/24/10 - Upstream releases from reservoirs are keeping Potomac River flows sufficient to meet demand.	46,300
6107600	Town of Purcellville	Surfce water/groundwater	V	W - 9/24/10 - Water levels in surface reservoir declining. Two new groundwater sources may become available for use in October. Voluntary water conservation initiated 7/2/10.	6,300
6107650	Town of Round Hill	Groundwater	V	W - 9/13/10 - Having some difficulty in filling storage tank. Voluntary water use	3,156

				restrictions effective 7/6/10.	
6137500	Town of Orange	Surface: Rapidan River	M	W - Mandatory water use restrictions are to be announced Monday, 9/13/2010, based on Rapidan River avg flow 38 cfs vs. 44 cfs trigger level. On 9/28, 14-day average = 14 cfs.	4,500
6137999	Wilderness	Surface - Rapidan River	M	W - Mandatory water use restrictions have been announced as of 9/24. On 9/28, restrictions are still in place.	11,331
6600100	City of Fairfax	Surface Water	N	W - Using a mixture of water from Goose Creek and Beaver Dam Reservoir	24,000

APPENDIX G
USGS Streamflow Conditions for September 28, 2010



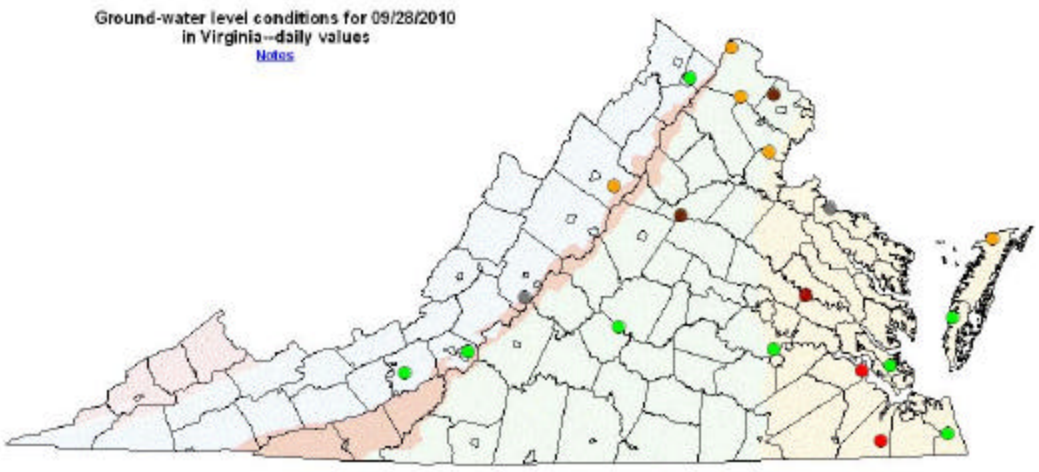
APPENDIX H
Drought Watch -- USGS State Information on Drought
Map of below normal daily average streamflow



EXPLANATION - Percentile classes
Low
Extreme drought
<=5
Severe drought
6-9
Moderate drought
10-24
Below normal
Insufficient data

APPENDIX I
Virginia Climate Response Network
September 28, 2010

Climate Response Network Locations in Virginia



Explanation - Percentile classes (symbol color based on most recent daily value.)

New Low	<5	5-10	10-24	25-75	76-90	90-95	>95	New High	Not Ranked
	Well Below Normal		Below Normal	Normal	Above Normal	Well Above Normal			

Explanation - Percentile classes (symbol color based on most recent daily value.)

New Low	<5	5-10	10-24	25-75	76-90	90-95	>95	New High	Not Ranked
	Well Below Normal		Below Normal	Normal	Above Normal	Well Above Normal			